Remarks

As a result of the present amendment, claims 1, 10, 17, 22, and 24-26 have been amended. Accordingly, claims 1-28 remain pending in the application.

Amendment to Drawings

The Official Action objected to FIG. 1 due to missing reference numbers 10 and 16. Applicant has enclosed in Appendix B a marked-up copy of FIG. 1 with red markings showing added reference numbers 10 and 16. The Official Action further required that correction of informalities indicated in the "Notice of Draftperson's Patent Drawing Review," PTO-948 be made. Applicant, accordingly, has submitted herewith formal drawings which incorporate the revisions shown in red in Appendix B and correct the informalities indicated on the PTO-948 form.

Response to the 35 U.S.C. §103(a) Rejections

The Hinckley and Topff Combination

Claims 10, 11, 13, 14, 16, and 22 were rejected under 35 U.S.C. §103(a) as being unpatentable over Hinckley (US 5,828,882) in view of Topff et al. (US 6,026,500). Claims 10 and 22 have been amended. Applicant believes this rejection has been overcome in view of the amendments made above and the remarks that follow.

Independent claim 10 includes limitations that are not taught or suggested by the combination of Hinckley and Topff. It is well established that obviousness requires a teaching or a suggestion by the relied upon prior art of all the elements of a claim (M.P.E.P. §2142). Without conceding the appropriateness of the combination, the Applicant respectfully submits that the combination of Hinckley and Topff does not meet

the requirements of an obvious rejection in that neither teaches nor suggests detecting occurrence of a hardware event with a monitor service that operates above an operating system module and that is separate from a programming interface used to register an application. One advantage of the invention of claim 10 is that an existing operating system module such as, for example, a device driver or a portion of a device driver that does not support event notifications may be effectively extended by the monitor service to support event notifications. This is especially helpful when the operating system module is provided by a third-party in a binary form that prevents modifying the operating system module to directly support event notifications.

Hinckley among other things does not teach or suggest using a monitor service to detect events that is separate from the programming interface and that operates above an operating system module. In particular, Hinckley describes an event notification facility that includes a program interface and an event interface. Hinckley does not teach or suggest implementing the program interface separate from the event notification facility. Moreover, Hinckley at column 4, lines 45-49 indicates that the event interface does not detect events but is connected to event detection hardware and/or software.

Similarly, Topff also does not teach or suggest using a monitor service to detect hardware events that operates above an operating system module. Topff teaches device monitors that produce event signals; however, Topff is basically silent as to the implementation of the device monitors and the interface to the managed devices of the systems management system. Since Topff is silent as to the manner by which hardware events are detected and the managed devices are interfaced, Topff does not

teach or suggest an operating system module to interface the device and a monitor service operating above the operating system module to detect hardware events.

The Applicant would like to emphasize that the preceding paragraphs were not intended to attack Hinckley and Topff separately. But instead, the Applicant has shown how each is devoid of claimed elements so that, by default, the combination is also devoid of at least some of the features of Applicant's claimed invention. Since claims 11, 13, 14, and 16 depend from claim 10, the Applicant believes the rejection of these claims has been overcome for at least the same reason. Additional arguments to distinguish the cited references from claims 10, 11, 13, 14, and 16 could be made, but it is believed that the foregoing discussion is sufficient to overcome the Examiner's rejection of claims 10, 11, 13, 14, and 16. Accordingly, Applicant respectfully requests the rejection of claims 10, 11, 13, 14, and 16 be withdrawn.

Independent claim 22 also includes limitations that are not taught or suggested by the combination of Hinckley and Topff. Without conceding the appropriateness of the combination, the Applicant respectfully submits that the combination of Hinckley and Topff does not meet the requirements of an obvious rejection in that neither teaches nor suggests a medium for storing instructions that defines a monitor service adapted to cause a processor to detect, via a module that interfaces a medium for storing data, the occurrence of an event with the medium for storing data and to indicate the occurrence of the event via a programming interface to a management application.

While Hinckley describes an event notification facility that includes an event interface, Hinckley at column 4, lines 45-49 indicates that the event interface does not detect events but is connected to event detection hardware and/or software. Hinckley is basically silent as to the implementation of the event detection hardware and/or

software. Similarly, while Topff teaches device monitors that produce event signals, Topff is basically silent as to the implementation of the device monitors and the interface to the managed devices of the systems management system. Since Hinckley and Topff are silent as to the manner by which events are detected and devices interfaced, Hinckley and Topff, alone or in combination, do not teach or suggest instructions that define a monitor adapted to cause a processor to detect, via a module that interfaces a medium for storing data, event occurrences associated with the medium for storing data as required by the invention of Applicant's claim 22. Applicant respectfully requests the rejection of claim 22 be withdrawn.

The Hinckley, Topff, and Corrington Combination

Claims 1-7, 9, 15, 17, 19, 20, 23, 24, and 26-28 were rejected under 35 U.S.C. §103(a) as being unpatentable over Hinckley in view of Topff and further in view of Corrington et al. (US 6,076,142). Claims 1, 23, and 24 have been amended. Applicant believes this rejection has been overcome in view of the amendments made above and the remarks that follow.

Independent claims 1, 17, and 26 include limitations that are not taught or suggested by the combination of Hinckley, Topff, and Corrington. Without conceding the appropriateness of the combination, Applicant respectfully submits that the proposed combination does not meet the requirements of an obvious rejection in that the references, alone or in combination, fail to teach or suggest detecting occurrence of an event with a RAID monitor service operating above or via an operating system module that interfaces with a RAID device. The Official Action states that Hinckley does not teach detecting occurrence of an event from a RAID with the RAID monitor service.

The Official Action further states Corrington teaches detecting occurrence of an event from a RAID with RAID monitor service (ICU Module and Monitor Utility).

As indicated above, neither Hinckley nor Topff teach or suggest a monitor service operating above an operating system module that interfaces with a device. Corrington also does not teach or suggest a RAID monitor service operating above an operating system module that interfaces with a RAID. Corrington describes an intelligent control unit (ICU) that is coupled to the components of a RAID system and that may sound an alarm or page an administrator in response to detecting a failure. From the description of the ICU provided at column 11, line 42 through column 12, line 12, it appears that the Corrington ICU is a hardware controller that operates independent of the host computer. Accordingly, the ICU does not rely on operating system modules of the host computer nor does Corrington teach or suggest detecting events via an operating system module.

Since claims 2-7, 9, 19, 20, 27, and 28 each depend from one of the independent claims 1, 17, and 26, Applicant believes the rejection of these claims has been overcome for at least the reasons discussed in regard to claims 1, 17, and 26. In addition, Applicants would like to point out features of dependent claim 7 that are neither shown nor suggested by the cited references. In particular, claim 7 calls for creating an *interprocess* communication between the RAID monitor service and the management application. (emphasis added). Hinckley teaches an event notification facility having a program interface. However, Hinckley teaches at column 5, lines 18-21 that the programs provide the program interface with a handler routine pointer that contains the address of the handler that is to be called. Operating systems typically provide memory protections that prevent one process from simply calling a procedure of another process. Such an access or procedure call would result in a memory protection

fault. Accordingly, those skilled in the art simply would not recognize Hinckley as teaching interprocess communication.

Additional arguments to distinguish the cited references from claims 1-7, 9, 17, 19, 20, and 26-28 could be made, but it is believed that the foregoing discussion is sufficient to overcome the Examiner's rejection of claims 1-7, 9, 17, 19, 20, 26-28. Accordingly, Applicant respectfully requests the rejection of claims 1-7, 9, 17, 19, 20, and 26-28 be withdrawn.

Claims 15, 23, and 24 each depend from one of the independent claims 10 and 22. Accordingly, Applicant believes claims 15, 23, and 24 are not obvious for at least the same reason as indicated above in regard to claims 10 and 22. Additional arguments to distinguish the cited references from claim 15, 23 and 24 could be made, but it is believed that the foregoing discussion is sufficient to overcome the Examiner's rejection of claims 15, 23, and 24. Accordingly, Applicant respectfully requests the rejection of claims 15, 23 and 24 be withdrawn.

The Hinckley, Topff, and Solomon Combination

Claim 12 was rejected under 35 U.S.C. §103(a) as being unpatentable over Hinckley in view of Topff and further in view of Solomon et al. (US 5,305,326). Without conceding the appropriateness of the combination or other arguments, claim 12 is not obvious for at least the reasons stated in regard to parent claim 10. Applicant respectfully requests that the rejection of claim 12 be withdrawn.

The Hinckley, Topff, Corrington, and Solomon Combination

Claims 21 and 25 were rejected under 35 U.S.C. §103(a) as being unpatentable over Hinckley in view of Topff and Corrington further in view of Solomon. Without conceding the appropriateness of the combination or other arguments, claims 21 and 25 are not obvious for at least the reasons state in regard to their respective parent claims 17 and 22. Applicant respectfully requests that the rejection of claim 21 and 25 be withdrawn.

The Hinckley, Topff, Corrington, and Skarbo Combination

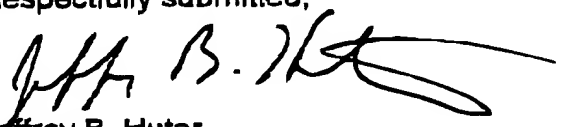
Claims 8 and 18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Hinckley in view of Topff and Corrington further in view of Skarbo et al. (US 5,805,886). Without conceding the appropriateness of the combination or other arguments, claims 8 and 18 are not obvious for at least the reasons state in regard to their respective parent claims 1 and 17. Applicant respectfully requests that the rejection of claim 8 and 18 be withdrawn.

Conclusion

The foregoing is submitted as a full and complete response to the Office Action mailed 24 October 2002, and it is submitted that claims 1-28 are in condition for allowance. Reconsideration of the rejection is requested, and allowance of claims 1-28 is earnestly solicited. Should it be determined that an additional fee is due under 37 CFR §§1.16 or 1.17, or any excess fee has been received, please charge that fee or credit the amount of overcharge to deposit account #02-2666.

If the Examiner believes that there are any informalities which can be corrected by an Examiner's amendment, a telephone call to the undersigned at (480) 554-4198 is respectfully solicited.

Respectfully submitted,



Jeffrey B. Huter
Senior Patent Attorney
Reg. No. 41,086

c/o Blakely, Sokoloff, Taylor & Zafman, LLP
1279 Oakmead Parkway
Sunnyvale, CA 94085-4040
(408) 720-8300

Appendix A

1. (Amended) In a computing device having an operating system module to interface with a RAID device, a [A] method of indicating occurrence of an event [from a redundant array of inexpensive disks (RAID) monitor service] to a management application, comprising:

registering the management application with an event application programming interface;

detecting occurrence of an event with [the] a RAID monitor service operating above the operating system module that interfaces with the RAID device; and

notifying the management application program of the event via the event application programming interface.

10. (Amended) In a computing device having an operating system module to interface with a device, a [A] method for notifying an application of the occurrence of a hardware event comprising:

registering the application with a programming interface;

detecting occurrence of the hardware event with a monitor service that operates above the operating system module and that is separate from the programming interface; and

upon detecting occurrence of the hardware event, notifying the application of the hardware event via the programming interface.

17. (Amended) An article comprising:

a machine readable storage medium having stored thereon instructions capable of being executed by a data processing platform, said instructions being adapted to register a management application with a programming interface so that the programming interface is capable of notifying the management application of an event [from] detected by a RAID monitor service that operates above an operating system module for interfacing with the RAID device.

22. (Amended) An article comprising:

a processor;

a medium for storing instructions;

a medium for storing data; and

a module to interface with the medium for storing data;

wherein instructions on the medium for storing instructions [are] define a monitor service adapted to cause the processor to [indicate] detect via the module the occurrence of an event with the medium for storing data [from a programming interface] and to indicate the occurrence of the event to a management application.

24. (Amended) The article of claim 22, [further comprising] wherein the device comprises a RAID device and the monitor service comprises a RAID monitor service.

25. (Amended) The article of claim 24, further comprising an intelligent input/output controller to interface with the RAID device.

26. (Amended) An apparatus comprising:

a processor;

an operating system module to interface with a RAID device;

a RAID monitor service to detect events of the RAID device via the operating system module;

an event programming interface;

a management application, wherein the event programming interface is adapted to notify the management application of an event [from] detected by the RAID monitor service.

Appendix B

See attached red-lined figure amendments.

Appendix B

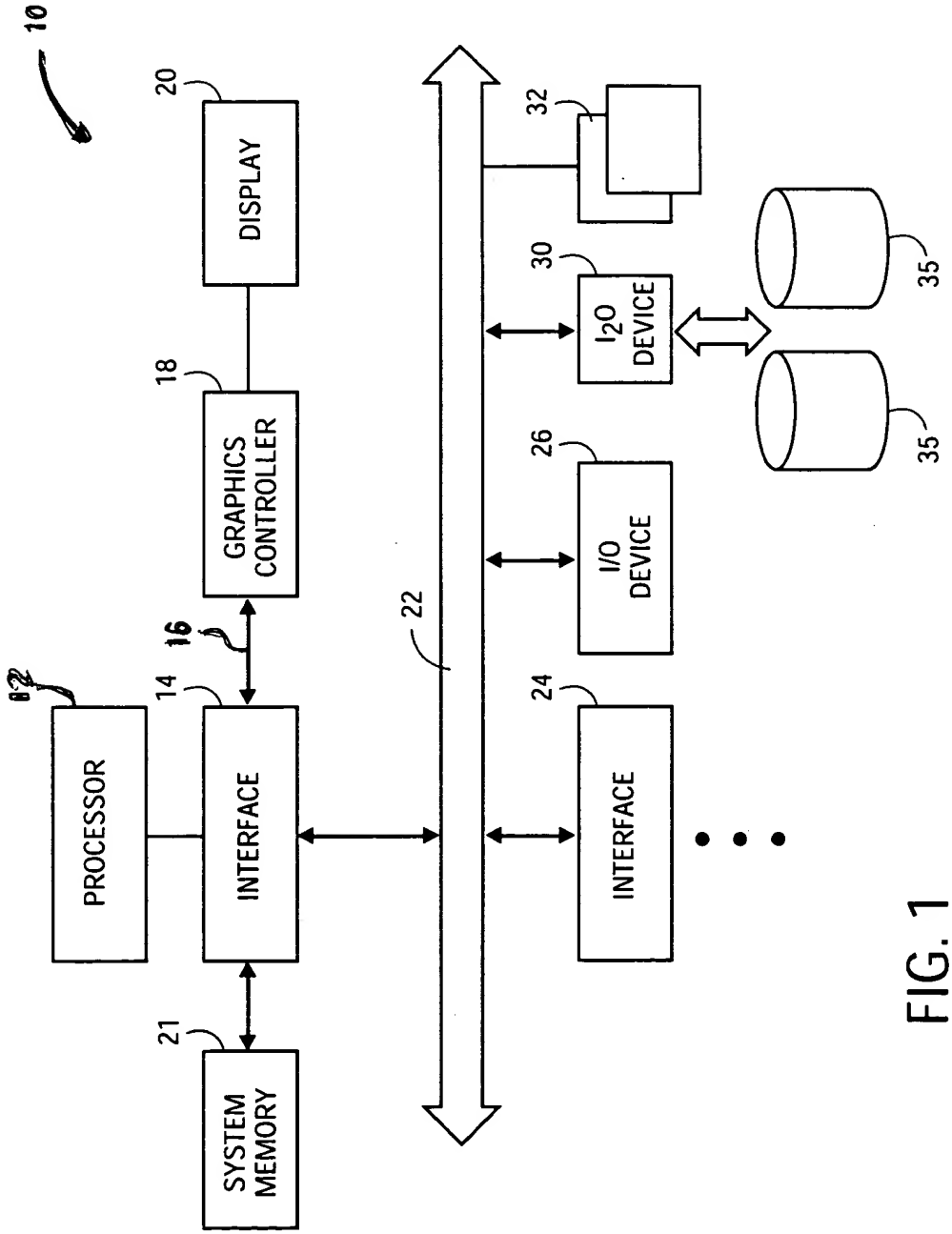


FIG. 1

Appendix B

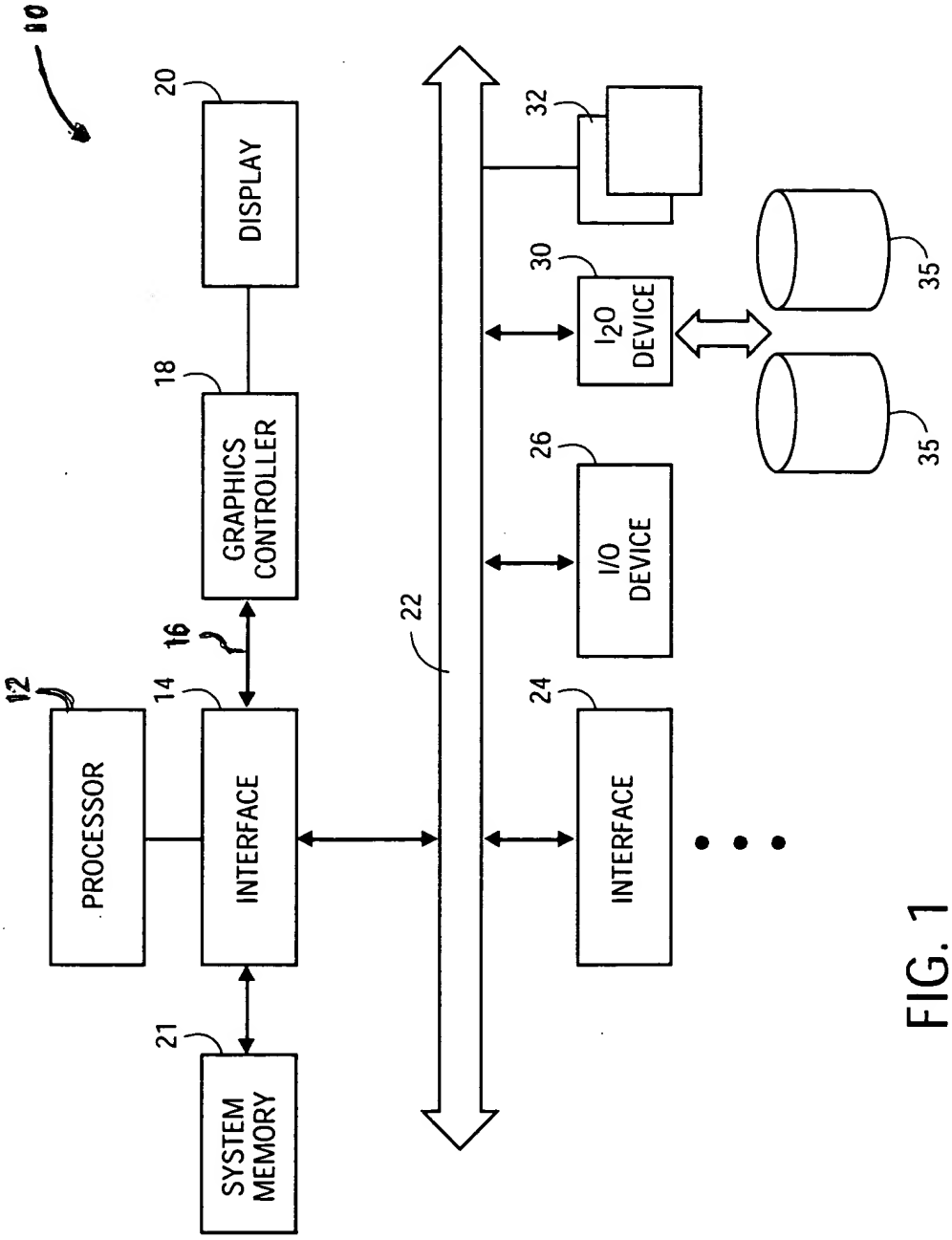


FIG. 1